FREQUENTLY ASKED QUESTIONS ON

POLYGON WARNINGS

USING GEOGRAPHIC INFORMATION SYSTEMS

Updated Feb. 12, 2007

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1. Where does the polygon information come from?

A: Polygons depicting severe weather warnings are included in tornado, severe thunderstorm, flash flood, and special marine warnings issued by the

National Weather Service. The latitude-longitude information can be found at the bottom of the text warnings.

2. Is historical polygon information for warnings available?

A: Warnings going back to early 2003 have been archived and databased. Some of these data are available on this website.

3. Why aren't there any polygons in the current warning shapefile I just downloaded?

A: Most likely this is due to there not being any warnings in effect at this time. This is a common occurrence and is the case probably at least 75% of the time. To ensure there aren't some other problems causing this you may want to try viewing the 7-day historical warning shapefile set which will be much more likely to have warnings in it.

4. Is this service likely to be terminated sometime in the future?

A: It is very unlikely that this will happen. However, at some point it is possible that the service might be moved to another server when the service is deemed operational. Sufficient notification will be provided if and when this becomes necessary. For more information on the National Weather Service's policy on experimental products and services we refer you to NWSI 10-102 located at:

http://www.nws.noaa.gov/directives/sym/pd01001002curr.pdf

5. Are other NWS watches and warnings provided in GIS format?

A: Not at this time although this has been proposed and may be implemented at some time in the future. We are experimenting with this at this time.

6. I'm using SDE and have problems importing some of these warnings into my application.

A: This is most likely due to “ring order” geometry of the shapefiles. The polygon information that is generated by the warning generation software used by the NWS does not follow GIS standards for “ring order”. A requirement has been submitted for the software to be modified to correct this. In the meantime, you might want to run a “repair geometry” tool on this set before deploying the data set.

7. Some of the polygons appear to be in the shape of counties. Why is this?

A: For years the National Weather Service has issued short-term warnings based on counties. Verification statistics have been used for years based on counties and dissemination has also been county-based in the form of the NOAA Weather Radio using SAME coding. Efforts are now underway to change both of these aspects of the warning program although the change will likely be gradual. Along those lines, NWS forecasters have been encouraged to issue warnings using polygons that highlight the severe weather threat rather than emulate the county. This is ultimately up to the actions of the forecaster responsible for issuing the warning. We anticipate that county-based polygons will be less frequent as more and more attention is directed towards the importance of the Polygon Warning initiative and more verification measures and dissemination methods become available.

8. How are the shapefiles created?

A: The warning text files are first captured real-time from the NWS’ AWIPS network. These files are then analyzed and the polygon information and VTEC information are extracted and databased. Data from this database are then used to construct GIS shapefiles using custom programming in Perl, along with a non-proprietary freeware software package, ‘shapelib’ (http://shapelib.maptools.org/). The graphics posted on the website were constructed using Perl and the GD (http://www.boutell.com/gd/) library.

9. Do you have metadata for these files?

A: Yes, one metadata file is available for all of the shapefiles (each is different only in terms of which warning type is displayed and which time period is covered). The file can be found at:

http://www.weather.gov/regsci/gis/metadata.txt

10. What datum or projection applies to these shapefiles?

A: The shapefiles are created using NAD 1983 and are not projected. For convenience, a "prj" projection file is included with the shapefiles so that the geographic coordinate system will be correctly loaded.

11. What time periods are each set valid for?

A: There are four sets available. The first shows only warnings in effect at the time. The second shows all cumulative warnings issued since 6 am Central time. The third shows all warnings issued for the 24-hour period ending at 6 am Central time (i.e., yesterday's warnings through 6 am). The fourth and last set shows the previous 7 days' worth of warnings ending in at 6 am Central time.

12. Do you construct any statistics based on the warnings?

A: Yes, a number of statistics are constructed and more will be coming. All of these are done using historical post-processed shapefiles, however. This is necessary because of (1) the manner in which the real-time warning shapefiles are produced (i.e., not using GIS software), (2) the need to project the shapefiles in order to produce valid area calculations, and (3) for data quality control issues as a small number of polygons contain errors due to errors in the source text warning files. One of the statistics that is produced is the County Area Ratio (CAR). This value is described in more detail at: http://www.weather.gov/regsci/gis/CAR.pdf. Also tracked are square mileage of warnings. In addition the warning sets are used along with point shapefiles of actual storm events (e.g., tornado touchdowns) to produce verification statistics.

13. What are the “Event” shapefiles found on this website and how are they generated?

A: These are constructed from event reports submitted by each NWS forecast office in the country and include such things as tornado touchdown locations including time and date, hail reports, and high wind reports. These events are often available shortly after events occur in the form of Local Storm Reports (LSR). More information on these can be found at: http://www.spc.noaa.gov/climo/. The official data set used in verification, however, is called Storm Data. More information on these can be obtained at: http://www.ncdc.noaa.gov/oa/climate/sd/. Most of the event shapefiles on this website are constructed using the official Storm Data sets. It typically takes a few months before a month’s worth of data are available and therefore these data are not available until some time after the period of record that they are valid for. The only exceptions are the events files for recent severe weather outbreaks. These data are collected using the unofficial LSRs issued by the forecast offices.

14. What are the data attributes of the shapefiles and what do the values represent?

Following is a table describing the data attributes used to construct the shapefiles:

Field Name	Data Type	Meaning/Format
ISSUE	Long Integer	MMDDHHMM (month-day-hour-minute) representing the issue (or starting) time for the warning
EXPIRE	Long Integer	Same as above but for the warning expiration time.
WFO	Text string	3-letter code designating issuing office (see http://www.nws.noaa.gov/oh/hic/WFOs/WFOs.html for a list of these offices)
ETN	Long Integer	Event Tracking Number used as part of the Valid Time Event Code (VTEC) to uniquely identify each warning (see http://www.weather.gov/os/vtec/ for more information on ETN and VTEC).
UGC	Text string	Universal Geographic Code (SSZ###, SS=state, Z=zone or C=county, ###= FIPS code for the state or territory); For SMW Z is used to designate marine zones; For other warnings, C is used indicating County number
FILE	Text String/URL	URL linking to the text file of the warning (note, files may be only be stored at these URLs for a limited time).